

PRELIMINARY REMARKS

The Applicant expresses appreciation for the Examiner's withdrawal of the rejection of claims 19-26 under 35 U.S.C. §103(a).

REMARKS

Claims 1-5, 18-19, and 21-38 are pending.

Rejections under 35 U.S.C. §102(b)

Claims 1-5 and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by Mori (US 5,443,707). The Applicant respectfully traverses this rejection and requests the Office to consider the following.

The Office Action states that "the Applicant's arguments are not commensurate with the scope of the claims because they are broader than the scope of the claims. The Applicant respectfully disagrees and points to language in Amendment A. Regarding the 102(b) rejection set forth in the Office Action dated December 28, 1999, and the Applicant's response thereto, the Applicant respectfully asserts that the language used in Applicant's arguments are direct quotes of the claim language and therefore the arguments are commensurate with the scope of the claims.

The Applicant repeats the language used in those arguments:

The claims require "directing the liquid material angularly toward the substrate surface so that the liquid material flows rotationally upon contact with the substrate surface." (Claim 1).

(Amendment A at page 8). Further:

Because Mori does not 'teach every element of the claim' M.P.E.P. § 2131, particularly "directing the liquid material angularly toward the substrate surface so that the liquid

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material flows rotationally upon contact with the substrate surface" (Claim 1), and because "each and every element as set forth in the claims is [not] found, either expressly or inherently described" in Mori, Verdegaal Bros., withdrawal of the rejection is respectfully requested.

(Amendment A at page 9). Because the Applicant has used precisely the language of the claims as his arguments, the scope of the arguments is not broader than the scope of the claims. Withdrawal of this rejection is respectfully requested.

The Office Action next states that "Applicant has not shown how the method of Mori differs from the instantly claimed method." (Office Action, page 2). The Applicant respectfully disagrees with this statement and again quotes from Amendment A:

Mori fails to teach or suggest this limitation [of directing the liquid material angularly toward the substrate surface so that the liquid material flows rotationally upon contact with the substrate surface]. In fact, the flow within Mori's device is streamlined plug flow that cannot meet the limitations of the present invention. Mori is directed toward finding a size and shape of the anode 110 in order to achieve the flatter metal film 108. Streamlines depicted in Mori are incorrect and not attainable. The Applicant submits the reference of Transport Phenomena by Bird, Stewart, and Lightfoot, pages 219-220 as an illustration of streamlined flow in a conduit with an expansion. As illustrated in Fig. 7.5-1, flow just beyond a right-angle expansion redevelops to a parallel streamlined flow within the conduit. An angled expansion as depicted in Mori will only facilitate the redevelopment of parallel streamlined flow. Consequently and in contravention to the present invention, Mori's flow is plug flow style that is directed perpendicularly toward the substrate surface.

As stated above, and because Mori rotates the substrate, an action that is clearly stated as a problem in the prior art, the Applicant respectfully asserts that Applicant has shown how the method of Mori differs from what is claimed. Further, because Mori directs the liquid material perpendicularly toward the substrate surface, the Applicant respectfully asserts that Applicant has shown how the method of Mori differs from what is claimed. Withdrawal of the rejection is respectfully requested.

The Office Action next states among other things, that Mori "direct[s] the liquid material angularly toward the substrate surface (col.3, lines 41-46) so that the liquid material flows rotationally upon contact with the substrate surface (col.3, lines 46-50)." The Applicant respectfully disagrees. As stated above, Mori does not teach rotational flow rather, Mori teaches rotation of the substrate. This can be further elucidated by the Examiner's own arguments. The Examiner states that [i]t is the Examiner's position that 'directing the liquid angularly' as instantly claimed teaches the application of the liquid at any angle . . . [that] can also include perpendicular because 0° is an angle, and 0° from perpendicular is perpendicular." (Office Action, page 3). This statement fails to take into account the plain meaning of the claim language. The claims require "directing the liquid material angularly toward the substrate surface *so that the liquid material flows rotationally upon contact with the substrate surface*." (Emphasis added). Mori cannot achieve this because his perpendicular flow in the instant invention would result in radial flow across the wafer and not rotational flow upon contact with the substrate surface as taught and claimed in the instant invention. If the Examiner had not made an out-of-context quote from the specification this argument would not have been advanced by the Examiner. To quote more completely from the specification with the Examiner's quotation, in context::

. . . which direct liquid 70 at an angle from perpendicular. *The resulting flow of liquid 70 on surface 40 is a rotational pattern.*

(Specification at page 5, lines 8-9. Emphasis added). Because the claim language, supported by the specification, excludes a perpendicular flow direction toward the substrate surface, withdrawal of this rejection is respectfully requested.

The Office Action next states that "Applicant has not claimed any criticality of rotational flow of the liquid" (Office Action, page 3). The Applicant respectfully traverses this statement and requests the Office to consider the following. What the Applicant claims is a method of applying a liquid material onto a surface of a substrate that is not taught by the prior art. It is the method of applying the liquid that is fundamentally different from Mori's method. Mori's method is perpendicular flow with rotation of the substrate. This creates problems as discussed in the specification of the instant invention. The present invention's method is "directing the liquid material angularly toward the substrate surface so that the liquid material flows rotationally upon contact with the substrate surface." (Claim 1). The two methods are not the same. The instant invention overcomes the problems of the prior art. Withdrawal of the rejection is respectfully requested.

The Office Action next states something to the effect regarding "how the rotational flow of Mori (col.3, lines 46-50) differs from that as instantly claimed." (Office Action, page 3). As far as Applicant understands what is being asserted, the Applicant traverses this statement and requests the Office to consider the following. Mori does not teach or suggest rotational flow of the liquid. This should be abundantly clear by a plain reading of his specification. Mori teaches rotating the substrate. This rotation of the substrate is

stated in the instant specification as a problem that was overcome by the instant invention. Withdrawal of the rejection is respectfully requested.

Rejection of claims 19 and 21-38 under 35 U.S.C. §102(b)

For all subsequent rejected claims, the Applicant will address each, but it is noted that the claimed limitation of a plurality of spray outlets, or the claimed flow regime that is accomplished thereby, is totally devoid of being taught in Mori. The Office Action states at page 5 that it is "the Examiner's position that nozzle is defined as a projecting vent of something (Merriam-Webster's Collegiate Dictionary, tenth edition). The Applicant believes that the Examiner is trying to assert that the flow lines illustrated in Mori are a plurality of vents. As discussed previously and as unrebutted by the Office, the flow lines in Mori are erroneously drawn. Further, the dictionary definition asserted by the Examiner precludes Mori from having more than one vent. The Applicant considers the Office's plurality of vents assertion to be untenable. Mori teaches a single vent called INJECTION HOLE 102. For this reason alone, withdrawal of the rejections of claims 19 and 21-38 is respectfully requested.

Claims 19 and 21-26 were rejected under 35 U.S.C. §102(b) as being anticipated by Mori (US 5,443,707). The Applicant respectfully traverses this rejection and requests the Office to consider the following.

To anticipate a claim, the reference must teach every element of the claim. M.P.E.P. § 2131. It is well settled that "[a] claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a

single prior art reference." Verdegaal Bros. v. Union Oil of California, 814 F.2d 628, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). (Cited at M.P.E.P. § 2131).

Claim 19 requires "spraying the liquid out of a plurality of outlets." Mori fails to teach or suggest a plurality of outlets. Because Mori fails to show each and every element as set forth in the claims, withdrawal of this rejection is respectfully requested.

The Office Action next states regarding claim 21, "Mori discloses spray outlets angled at approximately 20 to 60 degrees from vertical (see Fig. 6). The Applicant can see only one outlet, referred to as INJECTION HOLE 102 that is decidedly perpendicular to the substrate. Because Mori fails to show each and every element as set forth in the claims, withdrawal of this rejection is respectfully requested.

The Office Action next states regarding claims 22 and 23, "Mori discloses liquid directed radially outward with respect to the center of the substrate surface, and liquid directed circumferentially with respect to a perpendicular direction toward the substrate surface (col.4, lines 20-34)." (Office Action at page 4). The Applicant respectfully traverses this rejection. Again, Mori teaches only one outlet that he calls an INJECTION HOLE 102 that is decidedly perpendicular to the substrate. This fails to teach or suggest the limitation of a plurality of spray outlets as set forth above. To further assist the Examiner, the Applicant directs the attention of the Office to the discussion of "directed radially" and "directed circumferentially" as set forth in the specification at page 5 line 15 to page 7, line 9. In any event, Mori fails to teach or suggest a plurality of spray outlets. Withdrawal of this rejection is respectfully requested.

The Office Action next refers to claims 24-26 and cites to Mori, col.5, lines 42-46. Referring to claim language of claim 24, the Office Action states "Mori discloses at least one of a plurality of spray outlets in a perpendicular direction toward the center of the substrate." This is incorrect. The lines drawn in Figure 7 of Mori refer to ELECTRIC FIELD 109 lines. Mori's ELECTRIC FIELD 109 lines cannot be remotely construed to be a plurality of spray outlets and withdrawal of the rejection is respectfully requested. The Office Action next refers to claim 25: " Mori discloses . . . the plurality of spray outlets includes at least four spray outlets forming a cross pattern." Again, the ELECTRIC FIELD 109 lines of Mori cannot be construed to be forming a cross pattern formed by a plurality of spray outlets. The Office Action next refers to claim 26: " Mori discloses . . . at least one spray outlet located at the center of the cross pattern." Again, the ELECTRIC FIELD 109 lines of Mori cannot be construed to be at least one spray outlet located at the center of the cross pattern. Withdrawal of the rejections is respectfully requested.

The Office Action next refers to claims 27-33 and rejects them for the same reasons as for claims 19 and 21-26. The Applicant regards the responses to the rejection of claims 19 and 21-26 to be appropriate and incorporates the substance of them herein by reference.

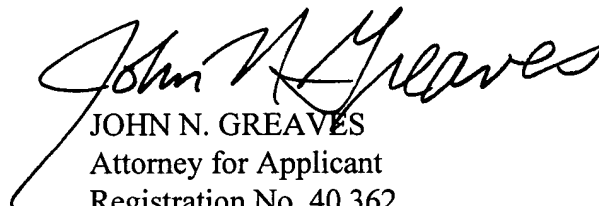
The Office Action next refers to claims 34-38 and rejects them for the same reasons as for claims 23-26. The Applicant regards the responses to the rejection of claims 19 and 21-26 to be appropriate and incorporates the substance of them herein by reference.

In summary, Mori fails to teach or suggest all the claims limitations and therefore does not anticipate the present invention as claimed. Withdrawal of the rejections is respectfully requested.

The Applicants consider the present application now in condition for allowance and respectfully request that the application be passed to allowance. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that could be clarified by a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

DATED this 22nd day of August 2000.

Respectfully submitted,



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